

BLUE POWER

World quality leader in independent electric power



charger

-  mains on
-  bulk
-  absorption
-  float



- | on
- off
- ⏻ charger only

invert

-  inverte
-  overlo
-  low ba
-  tempe



ABOUT VICTRON ENERGY

With over 30 years' experience, Victron Energy enjoys an unrivalled reputation for technical innovation, reliability and quality, and is a world leader in the supply of self-supporting electric power. Our products have been designed to meet the most demanding situations faced by a diversity of craft, recreational and commercial alike, whilst we also cater for many other industrial and commercial applications. Our product range includes sine wave inverters and inverter/chargers, battery chargers, DC/DC converters, transfer switches, Gel and AGM batteries, alternators, battery monitors, complete network solutions and many other innovative solutions.



[Appliance]

Victron pure sine wave inverters can be used for: computer, TV, stereo audio system, microwave, refrigerator, coffee maker, radar and navigation system, lighting, power tools and other electric household equipment.

[Products range]

- Sinewave Inverters
- Combined Inverter/chargers
- Automatic Battery Chargers
- DC DC Converters
- Transfer Switches
- Deep Cycle Gel and AGM batteries
- High Power Alternators
- Battery Monitors
- DC Distribution Units
- Control and Distribution Panels
- Battery Isolators
- Shore Power Connection Kits
- System Monitoring and Control

[Applications]

- Solar and wind power systems
- Yachts and commercial vessels
- Special vehicles such as live broadcasting vehicles, ambulances, service vans, trains, caravans etc
- Industrial
- Emergency power supply
- Remote areas where there is no continuous supply of 230V AC



[World-wide service and support]

Having served both the commercial and leisure marine sectors as well as vehicle and industrial markets for over 30 years, Victron has an established network of dealers and distributors covering the whole world. Our customer base is such that providing prompt and competent local service is essential and this is reflected in the capabilities of our support network. Our flexible approach to service support and our commitment to quick turnaround for repairs is market-leading. There are countless examples of Victron products that have provided decades of reliable service in the most demanding applications. This level of reliability combined with the highest level of technical know-how means that Victron Energy power systems offer the very best value available.



[12V: 180-5000 VA]
[24V: 180-5000 VA]
[48V: 180-5000 VA]

CHARACTERISTICS



• SinusMax - Superior engineering

True sine wave inverter with optimised efficiency but without compromise in performance. Employing hybrid HF technology, the result is a top quality product with compact dimensions, light in weight and capable of supplying power, problem-free, to any load.

• Extra start-up power

A unique feature of the SinusMax technology is very high start-up power. Phoenix inverters, however, are well suited to power up difficult loads such as refrigeration compressors, electric motors and similar appliances.

• Virtually unlimited power thanks to parallel and 3-phase operation capability

Up to 6 units Phoenix 24/3000 can operate in parallel to achieve 18KVA power output. Operation in 3-phase configuration is also possible.

• To transfer the load to another AC source: the automatic transfer switch

If an automatic transfer switch is required on models rated at 1200 VA or more, we recommend using the Phoenix Multiplus instead. The switch is included in these products and the charger function of the Multi can be disabled. For our lower power models we recommend the use of our Filax Automatic Transfer Switch. Computers and other electronic equipment will continue to operate without disruption because both the Filax and the Phoenix Multi feature a very short switchover times (less than 20 milliseconds).

• Computer interface

All models rated at 1200 VA or more have a RS-485 computer interface. Together with the VEConfigure software, all parameters of the inverters can be customised. The inverters can also be connected to VEnet, the new power control network of Victron Energy.

ACCESSORIES



BMV-600
Battery Monitor



Phoenix Inverter
Control (PIV)



Computer controlled
operation and
monitoring (Victron
Interface Mk2)



Battery Alarm An
excessively high
or low battery
voltage is indicated
by an audible and
visual alarm, and a
relay for remote
signalling.

Phoenix 12 Volt inverter 14 Volt 48 Volt	12/180 24/180 48/180	12/350 24/350 48/350	12/750 24/750 48/750	C12/1200 C24/1200	C12/1600 C24/1600	C12/2000 C24/2000	12/3000 24/3000 48/3000	12/5000 24/5000 48/5000
Input voltage range (VCD)	10.5 - 15.5 21.0 - 31.0 42.0 - 62.0	10.5 - 15.5 21.0 - 31.0 42.0 - 62.0	10.5 - 15.5 21.0 - 31.0 42.0 - 62.0	9.5 - 16 19.5 - 32.2	9.5 - 16 19.5 - 33	9.5 - 16 19.5 - 33	9.5 - 16 19.5 - 33 38 - 66	9.5 - 16 19.5 - 33 38 - 66
Cont. output power at 25 °C (VA)	180	350	750	1200	1600	2000	3000	5000
Cont. power at 25 °C / 40 °C (W)	175 / 150	300 / 250	700 / 650	1000 / 900 (4)	1300 / 1200 (4)	1600 / 1450 (4)	2500 / 2000 (4)	4250 / 3350 (4)
Peak power (W) (W)	200	500	1400	2200	2300 3000	4000	6000	7500
Max. Efficiency 12/24/48 V (%)	91 / 92 / 92	90 / 91 / 92	91 / 93 / 94	93 / 94	93 / 94	93 / 94	93 / 94 / 95	92 / 94 / 95
Zero-load power 12/24/48V (w)	2.2 / 3.0 / 4.0	3.0 / 3.5 / 4.0	12 / 12 / 12	8 / 11	8 / 11	10 / 10	15 / 15 / 16	25 / 30 / 30
Zero-load power in AES mode	n.a.	n.a.	3/4/5	5/8	5/8	8/10	10/10/12	15/20/20
Muti purpose relay driver or relay				relay driver (2)	relay driver (2)	relay driver (2)	relay (3)	relay (3)
Protection (5)	a,b,d,h	a,b,d,h	a,b,d,h	a,b,d,c,d,f,g,h	a,b,d,c,d,f,g,h	a,b,d,c,d,f,g,h	a-h	a-h
Common Characteristics	Output: 230 V ± 2% /50/60 Hz ± 0,2% (switch selectable) Operating temperature range: -20 to +50°C Humidity: max 95%							

ENCLOSURE								
Material & Colour	Aluminium (blue RAL 5012)							
Battery-connection	1)	1)	Screw conn.	1)	1)	M8 Studs	M8 Studs	4 M8 bolts
230 V AC-connection	IEC-320 (IEC-320 plug included) or Schuko			G-ST18i	G-ST18i	Spring-clamp	Screw-clamp	
Protection category	IP20	IP20	IP20	IP21	IP21	IP21	IP21	IP21
Weight (kg)	2.7	3.5	2.7	10	10	12	18	30
Dimensions (hxxwxd in mm)	72x132x200	72x155x237	72x180x295	375x214x110	375x214x110	520x255x125	362x258x218	444x328x240

ACCESSORIES								
Remote panel (RS485)				✓ (PIV)	✓ (PIV)	✓ (PIV)	✓ (PIV)	✓ (PIV)
Remote on-off switch	✓	✓	✓	✓	✓	✓	✓	✓
Automatic transfer switch	FILAX	FILAX	FILAX	Phoenix Multi				Quattro

STANDARDS								
Safety	EN 60950	EN 60950	EN 60950	EN 60335-1	EN 60335-1	EN 60335-1	EN 60335-1	EN 60335-1
Emission / Immunity	EN 55014-1 / EN55014-2							
Automotive Directive	95/54/EC and 2004/104/EC							

1) Battery cables of 1.5 meter
genset starts signal function
a. Output short circuit
e. Battery reverse polarity detection

2) Relay driver: open Collector 66V
4) Suitable for parallel and 3-phase
b. Overload
f. 230 V AC on inverter output

3) Multipurpose relay which can be set for general alarm, DC undervoltage or
5) Protection
c. Battery voltage too high
g. Input voltage ripple too high
d. Battery voltage too low
h. Temperature too high



PHOENIX INVERTER

120VAC/60HZ

[12V: 180-5000 VA]
[24V: 180-5000 VA]

CHARACTERISTICS



- **SinusMax - Superior engineering**
True sine wave inverter with optimised efficiency but without compromise in performance. Employing hybrid HF technology, the result is a top quality product with compact dimensions, light in weight and capable of supplying power, problem-free, to any load.
- **Extra start-up power**
A unique feature of the SinusMax technology is very high start-up power. Phoenix inverters, however, are well suited to power up difficult loads such as refrigeration compressors, electric motors and similar appliances.
- **Virtually unlimited power thanks to parallel and 3-phase operation capability**
Up to 6 units Phoenix 24/3000 can operate in parallel to achieve 18KVA power output. Operation in 3-phase configuration is also possible.
- **To transfer the load to another AC source: the automatic transfer switch**
If an automatic transfer switch is required on models rated at 1200 VA or more, we recommend using the Phoenix Multiplus instead. The switch is included in these products and the charger function of the Multi can be disabled. For our lower power models we recommend the use of our Filax Automatic Transfer Switch. Computers and other electronic equipment will continue to operate without disruption because both the Filax and the Phoenix Multi feature a very short switchover times (less than 20 milliseconds).

ACCESSORIES



BMV-600 Battery Monitor



Phoenix Inverter Control (PIV)



Computer controlled operation and monitoring (Victron Interface Mk2)



Battery Alarm
An excessively high or low battery voltage is indicated by an audible and visual alarm, and a relay for remote signalling.

Phoenix 12 Volt inverter 24 Volt	12/180 24/180	12/350 24/350	12/750 24/750	C12/2000 C24/2000	12/3000 24/3000	12/5000 24/5000
Input voltage range (VCD)	10.5 - 15.5 21.0 - 31.0	10.5 - 15.5 21.0 - 31.0	10.5 - 15.5 21.0 - 31.0	9.5 - 16 19.5 - 33	9.5 - 16 19.5 - 33	9.5 - 16 19.5 - 33
Cont. output power at 25 °C (VA)	180	350	750	2000 (4)	3000 (4)	5000 (4)
Cont. power at 25 °C / 40 °C (W)	175 / 150	300 / 250	700 / 650	1600 / 1450	2500 / 2000	4250 / 3350
Peak power (W) (W)	200	500	1400	4000	6000	7500
Max. Efficiency 12/24/48 V (%)	91 / 92	90 / 91	91 / 93	93 / 94	93 / 94	92 / 94
Zero-load power 12/24/48V (w)	2.2 / 3.0	3.0 / 3.5	12 / 12	10 / 10	15 / 15	25 / 30
Zero-load power in AES mode	n.a.	n.a.	3 / 4 / 5	8 / 10	10 / 10	15 / 20
Muti purpose relay driver or relay				relay driver (2)	relay (3)	relay (3)
Protection (5)	a,b,d,h	a,b,d,h	a,b,d,h	a,b,d,c,d,f,g,h	a - h	a - h
Common Characteristics	Output: Output: 120 V ± 2% / 60 Hz ± 0,2% (switch selectable) Operating temperature range: 0 - 122 °F Humidity: max 95%					

ENCLOSURE						
Material & Colour	Aluminium (blue RAL 5012)					
Battery-connection	1)	1)	Screw conn.	M8 Studs	M8 Studs	4M8 botts
230 V AC-connection	NEMA5-15R			Spring-clamp	Screw-clamp	
Protection category	IP20	IP20	IP20	IP21	IP21	IP21
Weight (kg)	2.7	3.5	2.7	12	18	30
Dimensions (hwxwd in mm)	72x132x200	72x155x237	72x180x295	520x255x125	362x258x218	444x328x240

ACCESSORIES						
Remote panel (RS485)				√ (PIV)	√ (PIV)	√ (PIV)
Remote on-off switch	√	√	√	√	√	√
Automatic transfer switch	FILAX	FILAX	FILAX	Phoenix multi		Quattro
STANDARDS						
Safety	EN 60950	EN 60950	EN 60950	EN 60335-1	EN 60335-1	EN 60335-1
Emission / Immunity			EN 55014-1 / EN55014-2			
Automotive Directive	95/54/EC and 2004/104/EC					

- 1) Battery cables of 1.5 meter
- 2) Relay driver: open Collector 66V
- 3) Multipurpose relay which can be set for general alarm, DC undervoltage or genset starts signal function
- 4) Suitable for parallel and 3-phase
- 5) Protection
 - a. Output short circuit
 - b. Overload
 - c. Battery voltage too high
 - d. Battery voltage too low
 - e. Battery reverse polarity detection
 - f. 230 V AC on inverter output
 - g. Input voltage ripple too high
 - h. Temperature too high



[12V: 800-3000 VA]
[24V: 800-3000 VA]
[48V: 3000 VA]

CHARACTERISTICS



• Multi-functional, with intelligent mains and generator power management

The multi gets its name from the multiple functions it can perform. It is a powerful true sine wave inverter, a sophisticated battery charger that features adaptive charge technology, and a high-speed AC transfer switch in a single compact enclosure.

• Uninterrupted AC power (UPS function)

In the event of a grid failure, or mains or generator power being disconnected, the inverter within the Multi is automatically activated and takes over the supply to the connected loads. This happens so fast (less than 20 milliseconds) that computers and other electronic equipment will continue to operate without disruption.

• PowerControl - Dealing with limited generator, shore side or grid power

With the Phoenix Multi Control Panel a maximum generator or shore current can be set. The Multi will then take account of other AC loads and use whatever is extra for charging, this preventing the generator or mains supply from being overloaded.

• PowerAssist - Boosting the capacity of grid or generator power, an innovative feature of the MultiPlus

This feature takes the principle of PowerControl to a further dimension allowing the MultiPlus to supplement the capacity of the alternative source. Where peak power is so often required only for a limited period, the Phoenix MultiPlus will make sure that insufficient shore or generator power is immediately compensated for by power from the battery.

• Four stage adaptive charger and dual bank battery charging

The main output provides a powerful charge to the battery system by means of advanced 'adaptive charge' software that fine-tunes the three stage automatic process to suit the condition of the battery, and adds a fourth stage for long periods of float charging. In addition to this, the Multi will charge a second battery using an independent trickle charge output intended for a main engine or generator starter battery.

ACCESSORIES



Phoenix Multi Control
This is a remote control
and monitoring panel
for the Phoenix Multiplus



VVC: VE.Net to VE BUS
Converter



Victron Global Remote

Multiplus 12V / 24V / 48V	C12/800/35 C24/800/16	C12/1200/50 C24/1200/25	C12/1600/70 C24/1600/40	C12/2000/80 C24/2000/50	12/3000/120 24/3000/70 48/3000/35
PowerControl	Yes				
PowerAssist	-	Yes (Multiplus)		Yes	
Transfer switch (A)	16	16	16	30	16 or 50
INVERTER					
Input voltage range (VCD)	9.5-17V 19-33V 38-66V				
Output	230 V ± 2% /50 Hz ± 0,1%				
Cont. output power at 25 °C (VA) (5)	800	1200	1600	2000	3000 (4)
Cont. output power at 25/40 °C (W)	700/650	1000/900	1300/1200	1600/1450	2500/2000
Peak power (W)	1600	2400	3000	4000	6000
Maximum efficiency (%)	92/94	93/94	93/94	93/94	93/94/95
Zero-load power (W)	5/8	5/8	5/8	10/10	10/10/12
CHARGER					
AC input	187-265 VAC, 45-55 HZ, Power factor:1				
Charge voltage 'absorption' (V DC)	14.4 / 28.8 / 57.6				
Charge voltage 'float' (V DC)	13.8 / 27.6 / 55.2				
Storage mode (V DC)	13.2 / 26.4 / 52.8				
Charge current house battery (A)(4)	35 / 16	50 / 25	70 / 40	80 / 50	120 / 70 / 40
Charge current starter battery (A)	4				
Battery temperature sensor	Yes				
GENERAL					
Multi purpose relay driver or relay	Relay driver (2)				Relay (3)
Protection (5)	a,b,c,d,f,g,h			a-h	
Common Characteristics	Operating temp. range: -20 - 50 °C (fan assisted cooling) Humidity (non condensing) : max 95%				
ENCLOSURE					
Common Characteristics	Material & Colour: aluminum (blue RAL 5012)				
Battery-connection	(1)			M8 Studs	
230 V AC-connection	G-ST 18i			Spring-clamp	Scre-clamp
Protection category	IP 21				
Weight (kg)	10	10	10	12	18
Dimensions (hwxwd in mm)	375x214x110			520x255x125	362x258x218
STANDARDS					
Safety	EN 60335-1, EN60335-2-29				
Emission / Immunity	EN 55014-1, EN 55014-2 / EN 61000-3-2,		EN 61000-3-3		
Automotive Directive	95/94/EC and 2004/104/EC				

1) Battery cables of 1.5 meter

2) Relay driver: open Collector 66V

3) Multipurpose relay which can be set for general alarm, DC undervoltage or genset starts signal function

4) Suitable for parallel and 3-phase

5) Protection

a. Output short circuit

b. Overload

c. Battery voltage too high

d. Battery voltage too low

e. Battery reverse polarity detection

f. 230 V AC on inverter output

g. Input voltage ripple too high

h. Temperature too high



QUATTRO 5KVA

230VAC/50HZ

[24V: 3000 VA]
[24V: 5000 VA]
[48V: 5000 VA]

CHARACTERISTICS



- **Two AC inputs with integrated transfer switch**
- **Two AC outputs**
The main output has no-break functionality. The second output is live only when AC is available on one of the inputs of the Quattro.
- **Virtually unlimited power thanks to parallel operation**
Up to 6 Quattro's can operate in parallel.
- **Three phase capability**
Three units can be configured for three-phase output.
- **PowerControl - Dealing with limited generator, shore-side or grid power**
- **PowerAssist - Boosting shore or generator power**
- **Solar energy: AC power available even during a grid failure**
The Quattro can be used in off grid as well as grid connected PV and other alternative energy systems.
- **A grid connected PV system will shut down when the grid fails! Not anymore with a Quattro and batteries**

Quattro	24/3000/70	24/5000/120	48/5000/70
PowerControl / PowerAssist	Yes	Yes	Yes
Integrated Transfer switch	Yes	Yes	Yes
AC inputs (2x)	Input voltage range: 187-265 VAC	Input frequency: 45-55 Hz	Power factor: 1
Maximum feed through current (A)	50	30	30
INVERTER			
Input voltage range (V DC)	19-33	19-33	38-66
Output (1)	Output voltage: 230 VAC ± 2%	Frequency: 50 Hz ± 0.1 %	
Cont. output power at 25 °C (VA) (2)	3000	5000	5000
Cont. output power at 25 °C (W)	2500	4250	4250
Cont. output power at 40 °C (W)	2000	3350	3350
Peak power (W)	6000	7500	7800
Maximum efficiency (%)	94	94	95
Zero-load power (W)	15	30	30
Load shedding output	25	10 Switches off when no external AC source available	
CHARGER			
Charge voltage ‘absorption’ (V DC)	28.8	28.8	57.6
Charge voltage ‘float’ (V DC)	27.6	27.6	55.2
Storage mode (V DC)	26.4	26.4	52.8
Charge current house battery (A)	70	120	70
Charge current starter battery (A)	4		
Battery temperature sensor	Yes	Yes	Yes
GENERAL			
Multi purpose relay (1)	Yes	Yes	Yes
Protection (3)	a-f		
Common Characteristics	Operating temp.: -20 to +50 °C (fan assisted cooling) Humidity (non condensing): max 95%		
ENCLOSURE			
Common Characteristics	Material & Colour: aluminium (blue RAL 5012)		Protection category: IP 21
Battery-connection	Four M8 bolts (2 plus and 2 minus connections)		
230 V AC-connection	Screw clamp 13 mm² (AWG 6)		
Weight (kg)	30		
Dimensions (h x w x d in mm)	362x258x218	444x328x240	
STANDARDS			
Safety	EN 60335-1, EN 60335-2-29		
Emissions / immunity	EN 55014-1, EN 61000-3-2 / EN 55014-2, EN61000-3-3		
Automotive Directive	2004/104/EC		

1) Multipurpose relay which can be set for general alarm, DC undervoltage or genset starts signal function

2) Suitable for parallel and 3-phase

a. Output short circuit

d. Battery voltage too low

g. Input voltage ripple too high

3) Protection

b. Overload

e. Battery reverse polarity detection

h. Temperature too high

c. Battery voltage too high

f. 230 V AC on inverter output



[12V: 2000-5000 VA]
[24V: 2000-5000 VA]

CHARACTERISTICS



• Multi-functional, with intelligent shore and generator power management

The multi gets its name from the multiple functions it can perform. It is a powerful true sine wave inverter, a sophisticated battery charger that features adaptive charge technology, and a high-speed AC transfer switch in a single compact enclosure.

• Uninterrupted AC power (UPS function)

In the event of a grid failure, or mains or generator power being disconnected, the inverter within the Multi is automatically activated and takes over the supply to the connected loads. This happens so fast (less than 20 milliseconds) that computers and other electronic equipment will continue to operate without disruption.

• Virtually unlimited power thanks to parallel operation and three phase capability

Up to 6 Multi's can operate in parallel to achieve higher power output. Three units of the same model can be configured for three-phase output.

• PowerControl - Dealing with limited generator or grid power

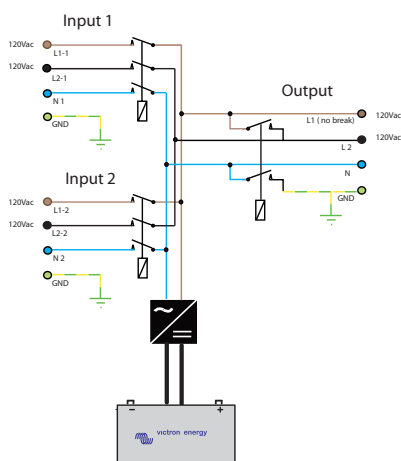
With the Phoenix Multi Control Panel a maximum generator or shore current can be set. The Multi will then take account of other AC loads and use whatever is extra for charging, this preventing the generator or shore supply from being overloaded.

• PowerAssist - Boosting the capacity of shore or generator power, an innovative feature of the MultiPlus

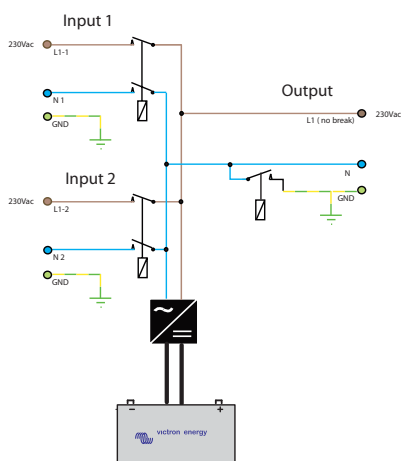
This feature takes the principle of PowerControl to a further dimension allowing the MultiPlus to supplement the capacity of the alternative source. Where peak power is so often required only for a limited period, the Phoenix MultiPlus/Quattro will make sure that insufficient shore or generator power is immediately compensated for by power from the battery.

• Four stage adaptive charger and dual bank battery charging

The main output provides a powerful charge to the battery system by means of advanced 'adaptive charge' software that fine-tunes the three stage automatic process to suit the condition of the battery, and adds a fourth stage for long periods of float charging. In addition to this, the Multi will charge a second battery using an independent trickle charge output intended for a main engine or generator starter battery.



120VAC split-phase version



230 VAC single-phase version

Multiplus 12V / 24V	12/2000/80-120/240V 24/2000/50-120/240V	12/3000/120-120V 24/3000/70-120V	12/3000/120-120V 24/3000/70-120V	Quattro 12/5000/200 - 120/240V Quattro 24/5000/120 - 120/240V
PowerControl	Yes			
PowerAssist	Yes			
Transfer switch (A)	30/50 A	30 A	50 A	60 A
INVERTER				
Input voltage range (V DC)	9,5-17V 19-33V			
Output	Output voltage: 120 VAC ± 2% Frequency: 60 Hz ± 0,1%			
Cont. output power at 25 °C (VA) (2)	2000	3000	3000	5000
Cont. output power at 25/40 °C (W)	1600/1450	2500/2000	2500/2000	4250/3350
Peak power (w)	4100	6000	6000	7500
Maximum efficiency (%)	93/94	93/94	93/94	92/94
Zero-load power (W)	10/10	15/15	15/15	25/30
CHARGER				
AC input	120V or 120/240V Input voltage range: 95-140 VAC Input frequency: 45-65 Hz Power factor:1			
Charge voltage ‘absorption’ (V DC)	14.4/28.8			
Charge voltage ‘float’ (V DC)	13.8/27.6			
Storage mode (V DC)	13.2/26.4			
Charge current house battery (A)	80/50	120/70	120/70	200/120
Charge current starter battery (A)	4			
Battery temperature sensor	Yes			
GENERAL				
Multi purpose relay driver or relay (1)	Relay			
Protection (3)	a-h			
Common characteristics	Operating temp. range: 0-120 °F (fan assisted cooling) Humidity (non condensing): max 95%			
ENCLOSURE				
Common Characteristics	Material & Colour: aluminum (blue RAL 5012)		Protection category: IP 21	
Battery-connection	M8 Studs			Four M8 Blots (2+, 2-)
230 V AC-connection	Spring-clamp	Screw-clamp		
Protection category	IP 21			
Weight (kg)	12	18	18	30
Dimensions (h x w x d in mm)	520x255x125	492x258x218	362x258x218	444x328x240
STANDARDS				
Safety	EN 60335-1, EN 60335-2-29			
Emission / Immunity	EN 55014-1, EN 55014-2/EN61000-3-2, EN 61000-3-3			
Automotive Directive	95/54/EC abd 2004/104/EC			

1) Multipurpose relay which can be set for general alarm, DC undervoltage or genset starts signal function

2) Suitable for parallel and 3-phase

a. Output short circuit

d. Battery voltage too low

g. Input voltage ripple too high

3) Protection

b. Overload

e. Battery reverse polarity detection

h. Temperature too high

c. Battery voltage too high

f. 230 V AC on inverter output



BLUE POWER BATTERY CHARGER IP20

[12V: 7-15 A]
[24V: 5-8 A]

CHARACTERISTICS



- **Universal input: 90-265 VAC or 90-350 VDC**
The charger will operate on whatever supply is available.
- **Adaptive 4-stage charge characteristics: bulk - absorption - float - storage**
The Blue Power charger features a microprocessor controlled 'adaptive' battery management. The 'adaptive' feature will automatically optimise the charging process relative to the way the battery is being used.
- **Less maintenance and aging when the battery is not in use: the Storage Mode**
The storage mode kicks in whenever the battery has not been subjected to discharge during 24 hours. In the storage mode float voltage is reduced to 2,2 V/cell (13,2 V for a 12 V battery) to minimise gassing and corrosion of the positive plates. Once a week the voltage is raised back to the absorption level to 'equalize' the battery. This feature prevents stratification of the electrolyte and sulphation, a major cause of early battery failure.
- **Protected against overheating and silent fan cooling**
Output current will reduce as temperature increases up to 60°C but the Blue Power charger will not fail. The load and temperature controlled fan is practically inaudible.
- **Two LED's for status indication**
Yellow LED: bulk charge (blinking fast), absorption (blinking slow), float (solid)
Green LED: power on



Blue power charger IP 20	12/7 12/10 12/15	24/5 24/8
Input voltage range	90-265 VAC, 90-350 VDC	
Frequency	45-65 or DC	
Charge voltage 'absorption' (V DC)	14.4	28.8
Charge voltage 'float' (V DC)	14	28
Charge voltage 'storage' (V DC)	13.2	26.4
Charge current (A)	7/10/15	5/8
Charge characteristic	4-stage adaptive	
Minimum battery capacity (Ah)	24/36/55	16/24
Can be used as power supply	Yes	
Protection	Battery reverse polarity (fuse in battery cable) Output short circuit, over temperature	
Operating range	-20 tot 60 °C Humidity: Max 95%	
ENCLOSURE		
Material & Colour	Aluminium (blue RAL 5012)	
Battery-connection	Black and red cable of 1,5 meter	
230 V AC-connection	Cable of 1,5 meter with Europe class 1 plug (CE certified)	
Protection category	IP20	
Weight (kg)	1.3	
Dimensions (hwxwd in mm)	50x85x200	
STANDARDS		
Safety	EN60335-1, EN60335-2-29	
Emission	EN55014-1, EN61000-3-2	
Immunity	EN55014-2, EN61000-3-3	



[12V: 7-17 A]
[24V: 3-12 A]

CHARACTERISTICS



- **Completely encapsulated: waterproof, shockproof and ignition protected**
Water, oil or dirt will not damage the Blue Power charger. The casing is made of cast aluminium and the electronics are molded in resin.
- **Protected against overheating**
Can be used in a hot environment such as a machine room. Output current will reduce as temperature increases up to 60°C, but the Blue Power charger will not fail.
- **Automatic three stage charging**
Once the absorption voltage has been reached to a low break point current (see specifications), or after a 20 hour absorption period. The battery is therefore effectively protected against overcharging and can remain permanently connected to the charger. The charger will automatically reset and start a new charge cycle after interruption of the AC supply.
- **Two LED's for status indication**
Yellow LED: battery being charged
Green LED: float charge, the battery is charged



Blue Power charger	12/7	12/17	24/3	24/12
Input voltage range (V AC) (1)	200-265			
Frequency (Hz)	45-65			
Charge voltage 'absorption' (V DC)	14.4		28.8	
Charge voltage 'float' (V DC)	13.7		27.2	
Charge current (A)	7	17	3	12
Charge characteristic	3 stage with max. 20 hours absorption time			
Minimum battery capacity (Ah)	15	35	6	24
Breakpoint current (A)	0.7	1.7	0.3	1.2
Can be used as power supply	Yes			
Protection	Battery reverse polarity (fuse in battery cable) Output short circuit, over temperature			
Operating range	-20 to 60 °C, Humidity Max: 100%			
ENCLOSURE				
Material & Colour	Aluminium (blue RAL 5012)			
Battery-connection	Black and red cable of 1,5 meter			
230 V AC-connection	Cable of 1,5 meter with Europe class 1 plug (CE-certified)			
Protection category	IP 67			
Weight (kg)	1.1	1.4	1.1	1.4
Dimensions (hxxwxd in mm)	43x80x155	47x99x193	43x80x155	47x99x193
STANDARDS				
Safety	EN60335-1, EN 60335-2-29			
Emission	EN55014-1, EN61000-3-2			
Immunity	EN55014-2, EN61000-3-3			

1) 120V / 60 Hz available



PHOENIX BATTERY CHARGER

[12V: 30-50 A]
[24V: 16-25 A]

CHARACTERISTICS



• Adaptive 4-stage charge characteristic: bulk - absorption - float - storage

The Phoenix charger features a microprocessor controlled 'adaptive' battery management system that can be preset to suit different types of batteries. The 'adaptive' feature will automatically optimise the process relative to the way the battery is being used.

• The right-amount of charge: adaptive charge

When only shallow discharges occur (a yacht connected to shore power for example) the absorption time is kept short in order to prevent overcharging of the battery. After a deep discharge the absorption time is automatically increased to make sure that the battery is completely recharged.

• Preventing damage due to excessive gassing: the BatterySafe mode (see fig2. below)

If, in order to quickly charge a battery, a high charge current in combination with a high absorption voltage has been chosen, the Phoenix charger will prevent damage due to excessive gassing by automatically limiting the rate of voltage increase once the gassing voltage has been reached (see the charge curve between 14,4 V and 15,0 V in fig.2 below).

• Less maintenance and aging when the battery is not in use: the Storage mode (see fig.1 & 2 below)

The storage mode kicks in whenever the battery has not been subjected to discharge during 24 hours. In the storage mode float voltage is reduced to 2,2 V/cell (13,2 V for 12 V battery) to minimise gassing and corrosion of the positive plates. Once a week the voltage is raised back to the absorption level to 'equalize' the battery. This feature prevents stratification of the electrolyte and sulphation, a major cause of early battery failure.

• To increase battery life: temperature compensation

Every Phoenix charger comes with a battery temperature sensor. When connected, charge voltage will automatically decrease with increasing battery temperature.

• Battery voltage sense

In order to compensate for voltage loss due to cable resistance, Phoenix chargers are provided with a voltage sense facility so that the battery always receives the correct charge voltage.

• Computer interface

Every Phoenix Charger is ready to communicate with a computer through its RS-485 data port. Together with our VEConfigure software, all parameters of the chargers can be customised. The chargers can also be connected to VENet, or to other computerised monitoring control systems.

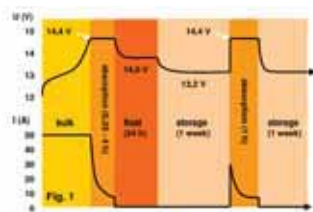


Fig. 1

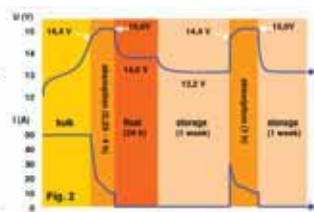


Fig. 2

ACCESSORIES



Battery Monitor



Phoenix Charger Control



Computer controlled operation and monitoring (Victron interface Mk2b)



Battery Alarm

Phoenix charger 12V/24V	12/30 24/16	12/50 24/25
Input voltage range	90-265 VAC, 90-400 VDC	
Frequency (Hz)	45-65, PF:1	
Charge voltage 'absorption' (V DC)	14.4 / 28.8	
Charge voltage 'float' (V DC)	13.8 / 27.6	
Storage mode (V DC)	13.2 / 26.4	
Battery bank	3	
Charge current house batt. (A)(2)	30/16	50/25
Charge current starter batt. (A)	4	
Charge characteristics	4 stage adaptive	
Battery capacity (Ah)	100-400 100-200	200-800 100-400
Temperature sensor	Yes	
Can be used as power supply	Yes	
Forced cooling	Yes	
Protection (1)	a,b,c,d	
Common characteristics	Temperature: -20 to 60 °C (0 - 140°F) Max humidity: 95%	
ENCLOSURE		
Material & Colour	Aluminium (blue RAL 5012)	
Battery-connection	M6 Studs	
230 V AC-connection	Screw-clamp 4mm ²	
Protection category	IP21	
Weight (kg)	3.8	
Dimensions (hwxwd in mm)	350x200x108	
STANDARDS		
Safety	EN60335-2-29	
Emission	EN55014, EN61000-3-2, EN61000-3-3	
Immunity	EN55014-2	
Vibration	IEC68-2-6: 10-150Hz/1.0G	
Automotive directive	95/54/EC	

1) Protection
a. Output short circuit
c. Battery voltage too high
2) Up to 40 °C ambient

b. Battery reverse polarity detection
d. Temperature too high



[12V: 30-50-80-100 A]
[24V: 25-50 A]

CHARACTERISTICS



• Perfect chargers for any type of battery

Charge voltage can be precisely adjusted to suit any sealed or unsealed battery system. In particular, sealed maintenance free batteries must be charged correctly in order to ensure a long service life. Over voltage will result in excessive gassing and venting of a sealed battery. The battery will dry out and fail.

• Controlled charging

Every TG charger has a microprocessor, which accurately controls the charging in three steps. The charging process takes place in accordance with the IUoUo characteristics and charges more rapidly than other processes.

• Use of TG chargers as a power supply

As a result of the perfectly stabilized output voltage, a TG charger can be used as a power supply if batteries or large buffer capacitors not available.

• Two outputs to charge 2 battery banks

The TG chargers feature 2 isolated outputs. The second output, limited to approximately 4 A and with a slightly lower output voltage, is intended to top up a starter battery.

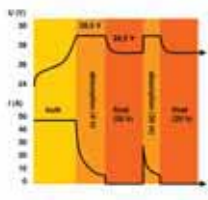
• To increase battery life: temperature compensation

Every Skylia TG charger comes with a battery temperature sensor. When connected, charge voltage will automatically decrease with increasing battery temperature. This feature is especially recommended for sealed batteries which otherwise might be overcharged and dry out due to venting.

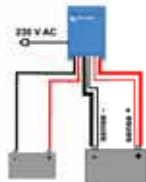
• Battery voltage sense

In order to compensate for voltage loss due to cable resistance, TG chargers are provided with a voltage sense facility so that the battery always receives the correct charge voltage.

Charge curve



Application example



ACCESSORIES



Battery Monitor



Skylia Control



Charger Switch
A remote on-off switch



Battery Alarm
An excessively high or low battery voltage is indicated by an audible and visual alarm.



Skylia TG GMDSS

Skylia 24V / 48V	24/30 TG 24/30 GMDSS	24/50 TG 24/50 GMDSS 24/50 TG 3 phase	24/80 TG	24/100 TG 24/100 TG 3 phase	48/25 TG	48/50 TG
Input voltage	185-265VAC, 320-450VAC or 180-400VDC (3)					
Frequency (Hz)	45-65					
Charge voltage 'absorption' (VDC)	28.5				57	
Charge voltage 'float' (VDC)	26.5				53	
Battery capacity (Ah)	150-300	250-500	400-800	500-1000	125-250	250-500
Charge current house batt. (A) (2)	30	50	75	100	25	50
Charge current starter batt. (A)	4				n.a.	
Charge characteristics	IUoUo					
Temperature sensor	√					
Can be used as power supply	√					
Potential free contacts	√					
Protection (1)	a,b,c,d					
Common characteristics	Temperature: -20 to 60 °C (0 - 140 °F) Max humidity: 95%					
ENCLOSURE						
Material & Colour	Aluminium (blue RAL 5012)					
Battery-connection	M8 Studs					
230 V AC-connection	Screw-clamp 2,5 mm² (AWG 6)					
Protection category	IP21					
Weight (kg)	5.5/6	5.5/13	10	10/23	5.5	10
Dimensions (hxxwd in mm)	365x250x147	365x250x147 365x250x257	365x250x257	365x250x257 515x260x265	365x250x147	365x250x257
STANDARDS						
Safety	EN60335-2-29					
Emissions	EN55014, EN61000-3-2, EN61000-3-3					
Immunity	EN55014-2					
Automotive directive	95/54/EC					

1) Protection

- a. Output short circuit
- b. Battery reverse polarity detection
- c. Battery voltage too high
- d. Temperature too high
- 2) Up to 40 °C ambient

Wide input voltage 90-265 VAC and GL approval model available



CENTAUR BATTERY CHARGER

[12V: 20-30-40-50-60-80-100-200 A]

[24V: 16-30-40-60-80-100 A]

CHARACTERISTICS



• Quality without compromise

Aluminium epoxy powder coated cases with drip shield and stainless steel fixings withstand the rigors of adverse environments: heat, humidity and salt air. Circuit boards are protected with an acrylic coating for maximum corrosion resistance. Temperature sensors ensure that power components will always operate within specified limits, if needed, by automatic reduction of output current under extreme environmental conditions.

• Universal 90 to 265 Volt input voltage range

All models will operate without any adjustment needed over a 90 to 265 Volt input voltage range, whether 50 Hz or 60 Hz.

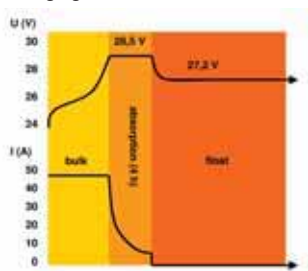
• Three outputs that each can supply the full output current

Three isolated outputs to simultaneously charge 3 battery banks. Each output is capable to supply the full rated current.

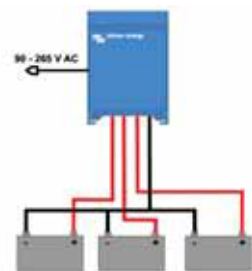
• Three stage charging, with temperature compensation

The Centaur charges at bulk rate until the output has reduced to 70% of the rated Amps, at which a 4 hour timer begins. After the timed period the charger switches to float rate. An internal temperature sensor is used to compensate the charge voltage with 2 mV/°C (1mV/°F) per cell.

Charging curve



Example



ACCESSORIES



Battery Monitor



Battery Alarm

An excessively high or low battery voltage is indicated by an audible and visual alarm.

Centaur Charger	12/20	12/30 24/16	12/40	12/50	12/60 24/30	12/80 24/40	12/100 24/60	24/80	12/200 24/100
Common characteristics	Input voltage: 90 - 265 VAC or 90 - 400 VDC Input frequency: 45 - 65 Hz Power factor: 1								
Charge voltage 'absorption' (VDC)	14.3 / 28.5 (1)								
Charge voltage 'float' (VDC)	13.5/27 (1)								
Output banks	3								
Recommended battery capacity (Ah)	80-200	120-300 45-150	160-400	200-500	240-600 120-300	320-800 160-400	400-1000 240-600	320-800	800-2000 400-1000
Charge current (A)(2)	20	30/16	40	50	60/30	80/40	100/60	80	200/100
Total output ammeter	Yes								
Charge characteristics	IUoUo (Three stage charging)								
Temperature sensor	Internal, -2mV / °C (-1mV / °F) per cell								
Forced Cooling	Yes, temperature and current controlled fan								
Ignition protected	Yes								
Protection	Output short circuit, over temperature								
Operating range	Temperature: -20 to 60 °C (0 - 140 °F) Humidity max: 95%								
ENCLOSURE									
Material & Colour	Aluminium (blue RAL5012)								
AC-connection	Screw-clamp 4mm ² (AWG 6)								
Battery-connection	IP21								
Protection category	M6 Studs	M8 Studs							
Weight kg (lbs)	3.8		5			12		16	
Dimension (hxxwxd in mm)	355x215x110		426x239x135			505x255x130		505x255x230	
STANDARDS									
Safety	EN 60335-2-29, UL 1236								
Emission	EN 55014, EN61000-3-2, EN 61000-3-3								
Immunity	EN 55014-2								

1) Standard setting. Optimum charge/float voltages for Flooded Lead-acid, Gel-Cell or AGM batteries selectable by dip switch.

2) Up to 40 °C (100 °F) ambient. Output will reduce to approximately 80% of nominal at 50 °C (120 °F) and 60% of nominal at 60 °C (140 °F)



1. Fasten the separate mounting plate (A) to the wall where you want to place the battery charger, and simply hook up the Centaur.
2. Secure the bottom of the backside (B) to the wall.



CHARACTERISTICS

Possibly the widest range on the market!

An ever-increasing is being used on vehicles and industrial systems. Because most low-voltage equipment is designed for 12 Volts, Victron Energy supplies DC/DC converters which deliver a stable 12 Volt supply from a 24 Volt system. These products are also distinguished by high efficiency, together with absolute safety. An inferior supply can cause irreparable damage to your 12 Volt system, but the use of an Orion voltage converter prevents problems of that type. Next to converters from 24 V to 12 V, a wide range of other models available.

Battery charger

The Orion 24/12-20 and 24/12-30 can also be used as a 13.8 Volt battery charger for a 12 Volt starter or accessory battery in an otherwise 24 V system.

To charge a 24 V battery from a 12 V system the Orion 12/27,6-12 can be used. The output voltage of this model can be adjusted with a potentiometer.

A super wide input range buck-boost regulator:

The Orion 7-35/12-3 is an isolated converter with a very wide input range, suitable for both 12 V and 24 V systems, and a fixed 12,6 V output.



Non isolated converters	Orion 24/12-5	Orion 24/12-8	Orion 24/12-12	Orion 24/12-20	Orion 24/12-30	Orion 24/12-60	Orion 12/24-7	Orion 12/24-10
Input voltage range (V)	18-35	18-35	20-35	20-35	20-35	20-35	9-18	9-18
Output voltage (V)	13.2	13.2	13.2	13.8	13.8	13.8	24	24
Max. output current (A)	5.5	8	12	20	30	60	70	10
Fan assisted cooling (temp. Controlled)	no	no	no	no	yes	yes	no	no
Galvanic isolation	no	no	no	no	no	no	no	no
Off load current	<5mA	<5mA	<5mA	appr. 25mA	appr. 25mA	appr. 50mA	<15mA	<15mA
Temperature increase after 30 minutes at full load (°C)	30	20	30	25	33	33	30	30
Weight (kg)	0.17	0.25	0.26	0.48	0.6	1.2	0.3	0.4
Dimensions (hwxwd in mm)	49x88x68	49x88x98	49x88x98	49x88x126	49x88x151	88x100x180	49x88x98	49x88x126

Note: two units orion 24/12-60 can be connected in parallel to obtain a 120A converter

Isolated converters	Orion xx/yy-100W	Orion xx/yy-200W	Orion xx/yy-360W
Power rating (W)	100 (12,5V/8A or 24V/4A)	200 (12,5V/16A or 24V/8A)	360 (12,5V/30A or 24V/15A)
Galvanic isolation	yes	yes	yes
Temperature increase after 30 minutes at full load (C)	25	30	30
Fan assisted cooling (temp. Controlled)	no	yes	yes
Weight (kg)	0.5	0.6	1.4
Dimensions (hwxwd in mm)	49 x 88 x 152	49 x 88 x 182	64 x 163 x 160
Input voltage (xx)	12 V (9-18V) or 24 V (20-35 V) or 48 V (30-60 V) or 96 V (60-120 V), 110 V		
Output voltage (yy)	12,5 V or 24 V		

Isolated 24V battery charger: Orion 12/27,6-12	Input 9 - 18 V, output 27,6 V, current limit 12 A, fan assisted cooling Output voltage adjustable with potentiometer Weight 1,4 kg, dimensions 64 x 163 x 160 mm
---	--

Isolated buck-boost regulator: Orion 7-35/12-3	Input 7 - 35 V, output 12,6 V current limit 3 A, derate current linearly from 3 A at 18 V to 1,5 A at 7 V Weight 1,4 kg, dimensions 64 x 163 x 160 mm
---	--

COMMON CHARACTERISTICS	
Output voltage stability	2 % (Orion 12/24-7 and Orion 12/24-10: + 0% / -5%)
Output voltage tolerance	3%
Output noise	< 50 mV rms
Off load current	< 25 mA (isolated converters)
Efficiency	Non isolated: appr. 92% Isolated: appr. 85%
Isolation	> 400 Vrms between input, output and case (isolated products only)
Operating temperature	- 20 to + 30 °C. Derate linearly to 0 A at 70 °C
Humidity	Max 95% non condensing
Casework	Anodised aluminium
Connections	6.3 mm push-on flat blade connectors
PROTECTION	
Overcurrent	Short circuit proof
Overheating	Reduction of output voltage
Reverse polarity conn	Fuse and reverse connected diode across input
Overvoltage	Varistor (also protects against load dump)
STANDARDS	
Emission	EN 50081-1
Immunity	EN 50082-1
Automotive Directive	95/45/EC





No-break back-up for grid connected solar systems.

Preventing shut down of the PV system in the event of a power outage

A rapidly growing number of houses, farms and other buildings are being fitted with grid connected solar installations. The standard configuration has an important drawback: it is dependent on the grid. If the grid fails, the grid connected inverter shuts down and a total blackout is the result, despite the investment in a solar installation!

The same is true for other grid connected alternative energy solutions, such as wind, water or micro-heat-and-power.

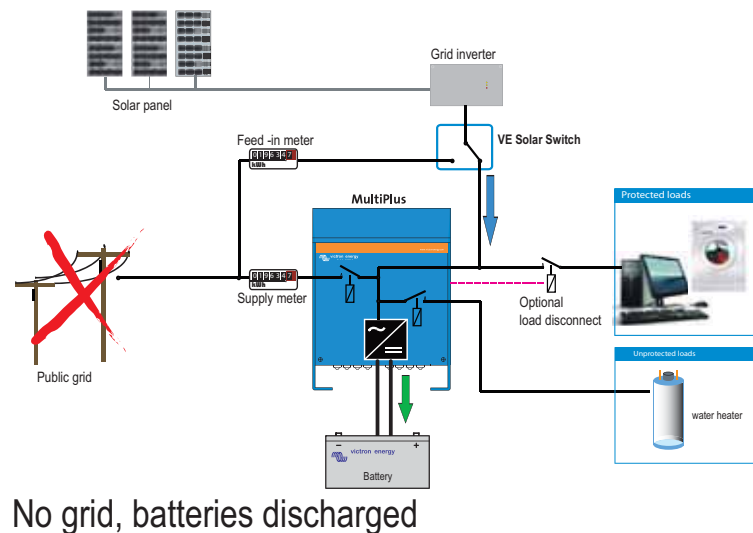
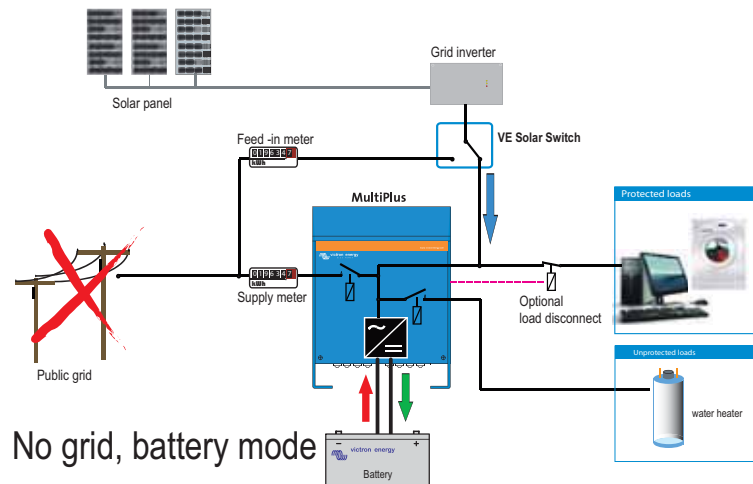
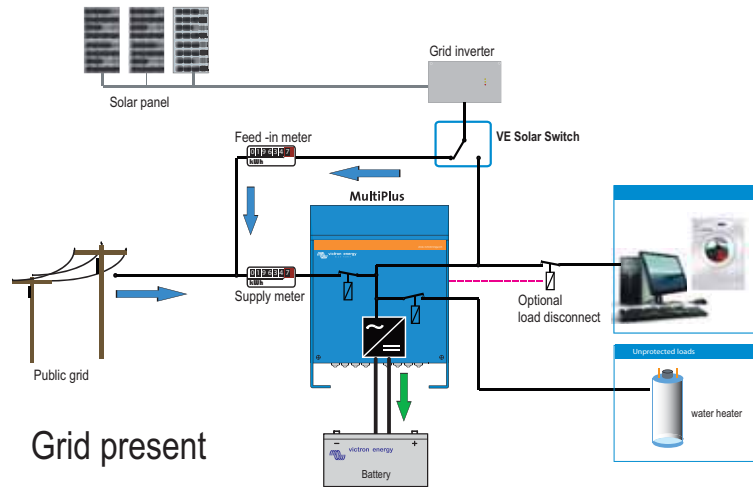
Basically, the solution to this problem is to add an inverter/charger and batteries.

In case of a power outage the SolarSwitch will connect the grid inverter to the output of a MultiPlus (or Quattro). The MultiPlus effectively replaces the grid and will take over the supply of the protected loads. High power loads that should not drain the battery can be connected to a second, load shedding output, of the MultiPlus.

During night time or when the load needs more power than supplied by the solar panels, the MultiPlus will supply extra power taken from the battery.

Any excess power supplied by the solar panels will be used to recharge the battery. Once the batteries are fully charged, the excess power can be redirected to a water heater (relay not shown), or a dump load (not shown), or the grid inverter can be stopped by slightly changing the output frequency of the MultiPlus.

In order to prevent the batteries from discharging completely in case of insufficient solar power, some or all loads can be shut down with help of programmable relays available on the SolarSwitch (not shown).





CHARACTERISTICS

Precision monitoring

The essential function of a battery monitor is to calculate ampere-hours consumed and the state of charge of a battery. Ampere-hours consumed is calculated by integrating the current flowing in or out of the battery. In case of a constant current, this integration is equivalent to current multiplied by time. A discharge current of 10A during 2 hours, for example, amounts to 20Ah consumed. All our battery monitors are based on a powerful microprocessor, programmed with the algorithms needed for precision monitoring.

Standard information and alarms

Battery voltage (V)
 Battery charge/discharge current (A)
 Ampere-hours consumed (Ah)
 State of charge (%)
 Time to go at the current rate of discharge
 Visual and audible alarm: over- and under voltage, and/or battery discharged
 Programmable alarm or generator start relay.

BMV 600: low cost ultra high resolution monitor

Highest resolution: 10mA (0,01A) with 500A shunt.
 Lowest current consumption: 1mA.
 Easiest to wire: the BMV 600 comes with stunt, 10 meter RJ 12 UTP cable and 2 meter battery cable with fuse.
 No other components needed.
 Easiest to install: separate front bezel for square or round appearance; ring for rear mounting and screws for front mounting.
 Broadest voltage range: 9-90 VDC without prescaler needed.

BMV 602H: 35 to 150VDC voltage range

No prescaler needed.

BMV 602: two batteries and communication port

In addition to all the features of the BMV600, the BMV602 can measure the voltage of a second battery and has a communication port. (Isolated RS232 interface is needed tot connect to a computer)

VE.Net Battery Controller: any number of batteries

One VE.Net panel will connect to any number of battery controllers.
 Comes with 500A/50mV shunt and can be programmed for any other shunt.
 With use, abuse and data memory.
 Temperature sensor and connection kit included.

Battery Monitoring	BMV 600	BMV 602	BMV 602H	VE.Net Battery Controller	VE.Net Battery Controller 48V
Power supply voltage range	9-90 VDC	9-90 VDC	35-150 VDC	9-35 VDC	9-60 VDC
Current draw, back light off	4mA at 12V 3mA at 24V	4mA at 12V 3mA at 24V	3mA	10mA at 12VDC	3mA at 48VDC
Input voltage range (VDC)	9-90 VDC	9-90 VDC	35-150 VDC	9-35 VDC	39-60 VDC
Battery capacity (Ah)	20-9999 Ah			20-60000Ah	
Operating temperature range	-20 - 50 °C (0 - 120 °F)				
Measures voltage of second battery	No	Yes	Yes	No	
Communication port	No	Yes	Yes	Yes (VE.Net)	
Potential free contacts	60V/1A (N/O)				
RESOLUTION (with 500 A shunt)					
Current	± 0.01A			± 0.1A	
Voltage	± 0.01V				
Amp hours	± 0.1Ah				
State of charge (0-100%)	± 0.1%				
Time to go	± 1 min				
Temperature (0-50 °C or 30-120 °F)	n.a.			± 1 °C (± 1°F)	
Accuracy of current measurement	± 0.3%				
Accuracy of voltage measurement	± 0.4%				
INSTALLATION AND DIMENSIONS					
Installation	Flush mount			DIN rail	
Front	63 mm diameter			22 x 75 mm (0.9 x 2.9 inch)	
Front bezel	69 x 69 mm (2.7 x 2.7 inch)			n.a.	
Body diameter	52 mm (2.0 inch)			n.a.	
Body depth	31 mm (1.2 inch)			105 mm (4.1 inch)	
ACCESSORIES					
Shunt (included)	500 A / 50 mV			500 A / 50 mV	
Cables (included)	10 meter 6 core UTP with RJ12 connectors and cable with fuse for '+' connection			Supplied with 1m cables	
Temperature sensor	n.a.			Supplied with 3m cable	
Computer interface	n.a.	Optional	Optional	n.a.	



VE NET

CHARACTERISTICS



• VE NET stands for VICTRON ENERGY NETWORK, a low power network that will monitor all essential equipment and alarms, and keep you informed through automatic e-mails, text messages, and even voice calls. Similarly the wireless connection could be used to access all systems on board remotely. For the ultimate in monitoring and control of your power system, VE.Net represents the state of the art. As a truly integrated solution, VE.Net provides the following components:

- 1. Blue power panel - multi character display and interface panel
- 2. Battery Controller - full function battery monitoring module (any number can be connected to the network).
- 3. Generator control - full monitoring and control of your generator including auto start/stop functionality.
- 4. VRM module - enables full access to system status and control remotely through the internet. It also gives a historical overview with graphs and bars through our internet website.

VE.Net can also be integrated with any number of other devices including an on board PC, power distribution systems and or senders and alarms. Your imagination is the only limit to what is possible.





Batteries

- VRLA AGM: design life 7-10 years
- VRLA GEL: design life 12 years
- VRLA GEL 2 volt cells: design life 20 years
- The AGM range has very low internal resistance making them particularly suitable for high current discharge and charging.
- The GEL model range offer best deep cycle durability and overall longer life.
- The use of high purity materials and lead calcium grids ensure that for both AGM and GEL products have particularly low self discharge so that they will not go flat during long periods without charge.
- Both ranges are supplied with M8 drilled, flat copper terminals ensuring best possible connection contact and eliminating the need for battery terminals. Manufactured under ISO 9002 quality standards, they are compliant with both CE and UL specifications in ABS fireproof containers and come with Victron's 2 year world-wide warranty.



FILAX Transfer Switch

- Filax: the ultra fast transfer switch
The Filax has been designed to switch sensitive loads, such as computers or modern entertainment equipment from one AC source to another. The priority source typically is the mains, a generator or shore power. The alternate source typically is an inverter.

PowerMan Transfer Switches

- Ideal to build a no-break power supply with several paralleled Multi's.
The PowerMan transfer switch enables seamless power transfer from one or more AC sources to several paralleled Multi's. In-built AC current monitoring ensures that the AC power management functionality of the Multi's remains available.



BatteryProtect (Models: BP-40i, BP-60i, BP-200i)

- The BatteryProtect disconnects the battery from non-essential loads before it is completely discharged (which would damage the battery) or before it has insufficient power left to crank the engine.



ESP system panel

- The new ESP panel system provides a contemporary designed range of panels that cover the core engineering systems. The main system panel is the heart of the range. This provides AC and DC monitoring, Multi control and backlight control. Additional panels include AC and DC circuit breaker panels, a general control panel, a VE Net panel.



Victron Global Remote

- The Global Remote is a modem which sends alarms, warnings and system status reports to cellular phones via text messages (SMS). It can also log data from Victron Battery Monitors, Multi's, Quattro's and Inverters to a website through a GPRS connection. The usage of this website is free of charge.
The idea is simple: you can use it to get SMS alarms from a Multi, a Battery System, or both. When monitoring the usage of batteries, it can be extremely helpful to receive under and overvoltage alarms; whenever they occur. For this purpose, the Global Remote is perfect. A prepaid SIM-card (for example) in combination with the Global Remote is adequate for remotely monitoring your system.
Taking it one step further, an internet browser and -connection is all you need to view all of the data online. You can simply create an account on the website and add your modem(s). Subsequently you can configure the GPRS connection, which will enable you to monitor the historic data of several basic properties such as system voltages, power levels and status information. All of this data is graphed. These graphs are available in daily, weekly and monthly timeframes.

Victron Remote Management is the name of the system which consists of the VGR and the monitoring website. To get a preview: please go to <http://www.victronenergy.com>, and login at 'Victron Remote Management' via the Login menu on the upper right of the page.



MULTIPLUS PRINCIPLE

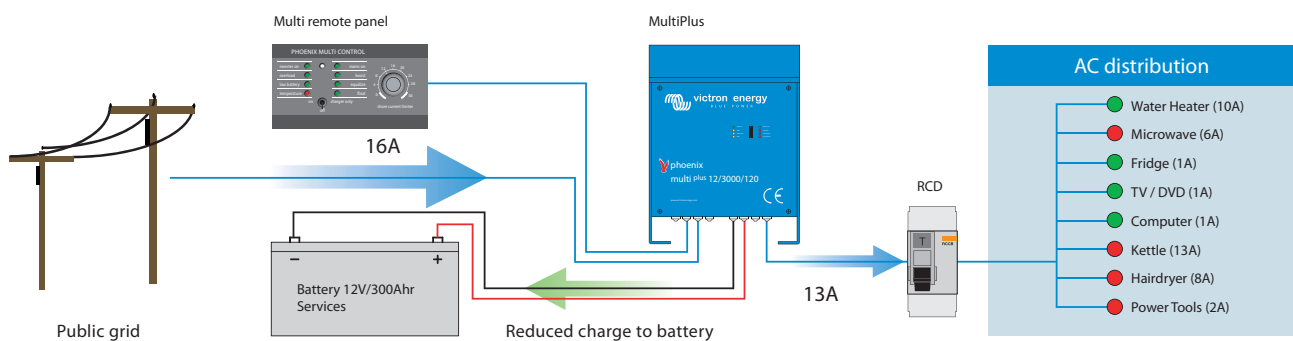
INVERTER/CHARGER SYSTEM WITH INTELLIGENT SHORE AND GENERATOR POWER MANAGEMENT

PowerControl: Dealing with limited generator or grid power

All models in the MultiPlus range feature powerful battery chargers. When the largest model is working hard it can draw almost 10A from a 230V supply. Using the remote panel it is possible to 'dial-in' the maximum current that is available from mains or generator. The MultiPlus will then automatically regulate the charger taking account of other system AC loads and ensuring the charger only uses what is spare. This way it is possible to avoid tripping the mains power or overloading the generator.

POWER CONTROL ©

Battery charger reduces its output, if required, to avoid overload of supply when system consumption is high.



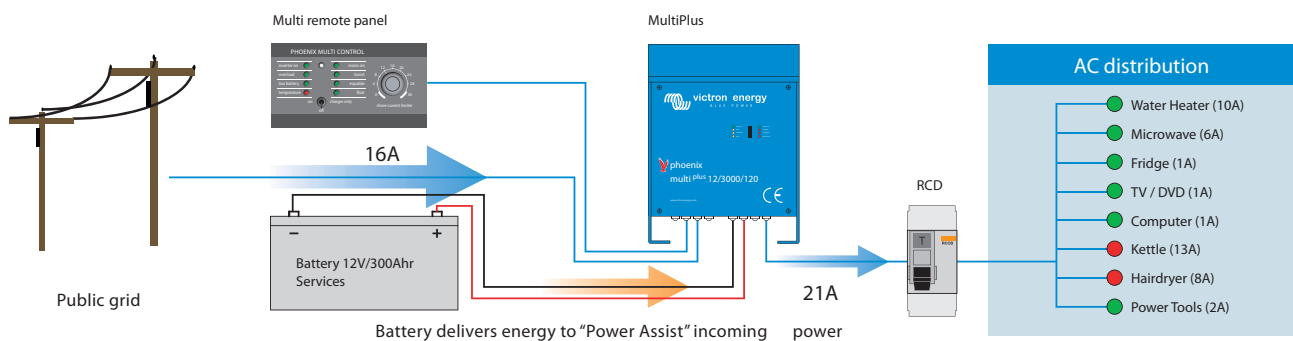
PowerAssist: Boosting the power available from mains or generator, an innovative feature of MultiPlus.

The feature that most distinguishes the MultiPlus from other inverter / chargers is PowerAssist. This feature takes the principle of PowerControl to a further dimension by allowing a MultiPlus to supplement the power available from mains or generator to 'assist' during periods of high demand. Peak power demand is almost always sustained only for short periods, either a few minutes (in the case of items like cooking appliances) or just a few seconds (in the case of the burst of energy needed to start an air-conditioning or refrigeration compressor).

With the capacity of the generator or mains power set on the remote panel, the MultiPlus detects when the load is becoming too much for the supply and will instantly provide the extra power required. When the demand has reduced, the unit returns to charging the battery. This feature is equally effective in large and small systems helping to reduce the required generator capacity or to achieve greater things with limited mains power. There is even a special feature to enable the MultiPlus/Quattro to work perfectly with portable generators.

POWER ASSIST ©

Inverter boosts incoming power, if required, to avoid overload of supply when system consumption exceeds supply.

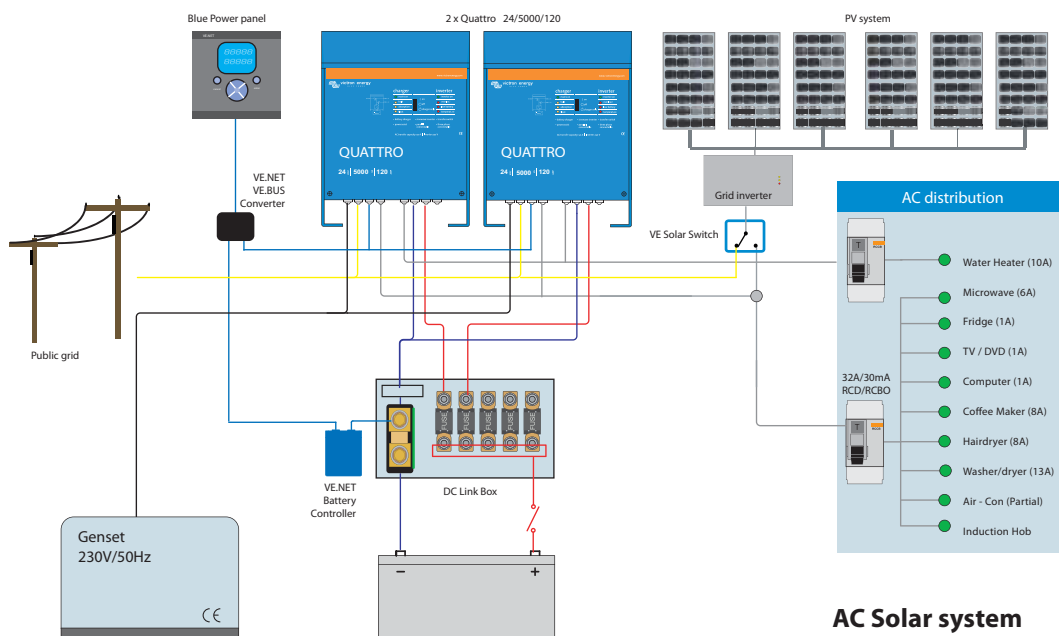
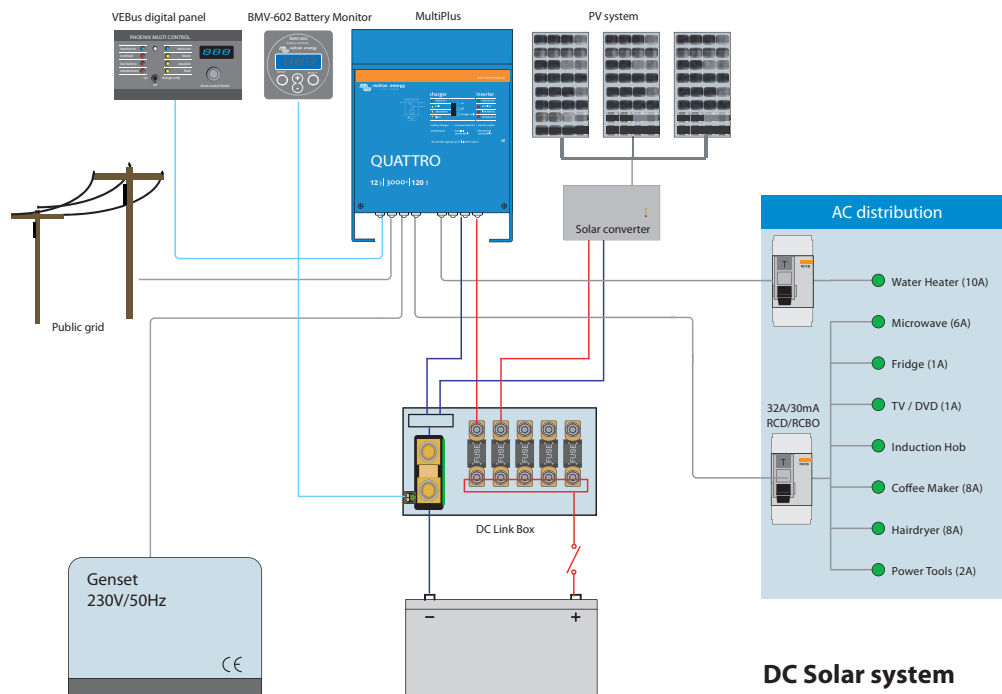




INTRODUCTION

However far you travel, a reliable power source is an essential requirement for providing optimum onboard comfort. This necessity becomes even greater in remote places where the power supply is less dependable. So now you can enjoy a hot shower or a cold drink, whenever and wherever you want, without worrying about where your power is coming from.

Victron Energy offers a complete range of power systems, designed to meet a diversity of requirements. From small craft to large sailing yacht, mobile homes, utility vehicles or industrial applications, our systems offer the ideal solution to your specific power needs.





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